



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/856,121	12/21/2001	Martin Paul Wilson	66455-195-2	4079
25269	7590	01/13/2005		
DYKEMA GOSSETT PLLC FRANKLIN SQUARE, THIRD FLOOR WEST 1300 I STREET, NW WASHINGTON, DC 20005			EXAMINER JACKSON, BLANE J	
			ART UNIT	PAPER NUMBER
			2685	

DATE MAILED: 01/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/856,121

Applicant(s)

WILSON, MARTIN PAUL

Examiner

Blane J Jackson

Art Unit

2685

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 16 and 23 is/are rejected.
- 7) ☒ Claim(s) 6-15, 17-22 and 24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 May 2001 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. Applicant's arguments, see the applicants response, filed 23 September 2004, with respect to the rejection(s) of claim(s) 1-24 under USC 112 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Black in view of Swales.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-5, 16 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Black et al. (U.S. Patent 5,430,416) with a view to Swales (U.S. Patent 5,978,662).

As to claim 1, Black teaches a linear RF transmitter for the transmission of non-constant envelope modulated signals comprising:

Baseband processing means arranged to resolve an input signal into a phase component and to further resolve the phase component into in-phase and quadrature components (figure 4, information source (306), column 3, lines 44-47),

Phase modulation means arranged to receive the analogue representations of the in-phase and quadrature components and to upconvert and phase modulate the I and Q components into an RF signal (the phase modulation (408) accepts the I and Q inputs (321) and (323) to generate a modulated carrier signal (421), the "carrier signal" indicating an upconverted signal from baseband, column 4, lines 23-31).

The prior art is clear that the information source (306) provides I and Q baseband information signals to the phase modulator (408), column 3, lines 44-47, column 4, lines 23-31, but confuses these two separate signals to be a single "baseband phase modulation signal" (321). However, in view of the interconnections as shown in figures 3 and 4 and further discussion in the cited section of Black, it is understood that the information source provides three outputs, an amplitude modulation signal (314), in-phase baseband signal (321) and quadrature baseband interpreted to be signal (323).

Output power amplifier means arranged to receive the phase modulated RF signal and amplify the signal for transmission (figure 4, PA (407), column 5, lines 11-12),

Direct amplitude modulation means arranged to receive an amplitude component of the input signal and to control the output power amplifier means in accordance with the amplitude component whereby to amplitude modulate the RF signal (figure 4, section (415), the AM control loop, column 5, lines 11-20),

Synchronizing means arranged to monitor the RF signal and control the conversion means in response to the RF signal (column 4, lines 23-62).

Black teaches a radiotelephone with an information source to resolve the transmit I and Q baseband analogue signal components but does not identify conversion means arranged to generate analogue representations of the signal components.

Swales teaches a direct conversion transmit circuit with a cartesian amplifier where the baseband digital I and Q signal components are each converted to analogue prior to upconversion, figure 1, column 3, lines 25-65. It would have been obvious to one skilled in the art at the time of the invention to recognize in the phase modulator of Black the digital conversion step exhibited by Swales as a necessary processing step for a digital baseband radiotelephone.

As to claim 2, Black teaches the baseband processing means are further arranged to resolve the amplitude component from the input signal and the conversion means are further arranged to generate an analogue representation of the amplitude component and feed the analogue representation to the direct amplitude modulating means (figure 3, information source provides the amplitude component (314), column 3, lines 44-47 and figure 4 depicts the amplitude signal (314) used in circuit section (415) to modulate the power amplifier, column 5, lines 12-20).

As to claims 3 and 4, Black teaches the phase modulator means further comprises:

A first oscillator arranged to produce an intermediate frequency signal (figure 4, oscillator in the phase modulation (408) to generate the carrier signal, column 4, lines 23-31),

A first IQ modulator means to phase modulate the intermediate frequency signal with the I and Q signal components (phase modulation (408) to generate a modulated carrier signal (421)),

An envelope detector means to detect the amplitude component of the phase modulated intermediate frequency signal and to feed the amplitude component to the direct amplitude modulation means (column 5, lines 20-27),

Limiting means to remove the amplitude component from the phase modulated intermediate frequency signal (limiter (420), column 4, lines 31-62),

A second oscillator arranged to produce a reference frequency signal (frequency reference signal (316),

A phase lock loop to upconvert the modulated intermediate frequency signal to the radio frequency (VCO (405), column 5, lines 6-11),

The upconverted intermediate frequency signal is output as the phase modulated RF signal at a frequency the sum of the intermediate frequency and the reference frequency (column 5, lines 6-11).

As to claim 5, Black teaches the phase lock loop comprises:

A voltage controlled oscillator (figure 4, section (417), VCO (405)),

Phase comparison means (phase comparator (403)),

Summing and mixing means (mixer (401)),

Wherein the phase comparison means is arranged to receive the phase modulated intermediate frequency signal and a mixed signal output from the mixer means and to control the voltage controlled oscillator therefrom, and wherein the voltage controlled oscillator is arranged to output a constant amplitude phase modulated signal in response to the phase comparison means and wherein the summing and mixing means are arranged to sum the constant amplitude phase modulated signal with the RF signal fed back from the output of the output power amplifier means and mix the resulting signal with the reference frequency signal to generate the mixed signal fed to the phase comparison means (function of figure 4, column 4, line 23 to column 5, line 27).

As to claim 16, Black teaches the direct amplitude modulation means further includes power economy means (column 4, lines 1-22).

As to claim 23, Black teaches an amplitude detector means further includes:

An envelope detector for detecting the amplitude envelope (figure 4, envelope detector (411) sourced by coupler (409) that monitors the RF AM output signal),

A differentiator arranged to receive the output of the envelope detector and differentiate the signal with respect to time (amplifier/capacitor (413), column 5, lines 15-20).

Allowable Subject Matter

3. Claims 6-15, 17-22 and 24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.


Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Blane J Jackson whose telephone number is (703) 305-5291. The examiner can normally be reached on Monday through Friday, 8:00 AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on (703) 305-4385. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BJJ


EDWARD F. URBAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800